UNIT-2

METHODS IN PSYCHOLOGY

Syllabus [Main's]:- Type of psychological research –descriptive,evaluative,diagnostic,& prognostic;Method of research- observation, Survey, Case study and Experiment.Characteristics of experimental and nonexperimental design;quasi experimental design.Focused group discussion.brain storming.Grounded theory approach.

Syllabus [Prelims]:- Characteristics of psychological studies, Observation. Survey method, Clinical and case study method. Experimental method. Application of methods.

Methods of research

Method is the systematic procedure involved in the investigation of facts and concepts. Methods are the special techniques in psychology such as experimental method or the clinical method used to collect facts. The term implies the special procedures utilized in the investigation of facts and the formulation of concepts from the points of view as stated.

The scientific method is emphasized as the basis for investigation. The founding of Wundt's laboratory marked the beginning of the formal application of the scientific method to problems in psychology. This method is neither identified with any particular kinds of equipment, nor is it associated exclusively with specific research procedures. The scientific method is something abstract. It is an approach to knowledge that is best described by distinguishing it from what might be called nonscientific or 'everyday' approaches to knowledge.

Several major differences between a scientific and a nonscientific approach to knowledge are outlined in Table A. Collectively, the characteristics listed under 'Scientific' define' what is called scientific method. The distinctions made in Table A. between a scientific and a nonscientific approach are intended to highlight differences that frequently exist between 'everyday' or informal kinds of thinking that is characteristic of the scientist's approach to knowledge.

Table A

Characteristics of Scientific and Nonscientific (Everyday) Approaches to Knowledge

	Nonscientific (everyday)	**Scientific**
General Approach	Intuitive	Empirical
Observation	Casual, uncontrolled	Systematic, controlled
Reporting	Biased, subjective	Unbiased, objective
Concepts	Ambiguous, with surplus meanings	Clear definition, operational specificity
Instruments	Inaccurate, imprecise	Accurate, precise
Measurement	Not valid or reliable	Valid and reliable
Hypotheses	Untestable	Testable
Attitude	Uncritical, accepting	Critical, skeptical

SHOUT
SHARE
IT

As an approach to knowledge, the scientific method is characterized by a reliance on empirical procedures, rather than intuition, and by an attempt to control (through manipulation, holding conditions constant, and balancing,) the investigation of those factors believed responsible for a phenomenon. Those factors that are systematically controlled in an attempt to determine their effect on behaviour are called independent variables. The measures of behaviour used to assess the effect of the independent variable are called dependent variables. It is important to recognize when levels of an independent variable have been manipulated and when, as is the case for a subject variable, the levels have been selected.

Scientists seek to report results in an unbiased and objective manner. This goal is enhanced by giving operational meaning to concepts. Scientists also seek to measure phenomena as accurately and precisely as possible. Measurement involves both physical and psychological measurement. Scientists seek both validity and reliability of these measures. Hypotheses are tentative explanation of events. To be useful to the scientist however, hypotheses must be testable. Hypotheses that lack adequate definition, that are circular, or that appeal to ideas or forces outside the province of science are not testable. Hypotheses are often derived from theories. More than anything else, scientists are skeptical. A skeptical attitude is not always found among nonscientist, who may rush to accept 'new discoveries' and extraordinary claims. Thus, the scientific method is intended to meet three goals: **Description**, **prediction** and **understanding**.

There are two general types of methods commonly used by psychologists, descriptive and experimental techniques. Descriptive techniques are useful for developing precise descriptions of behaviour and the circumstance under which a certain behaviour might occur. Experimental techniques can be useful in determining which factors may actually cause which behaviour.

Descriptive Techniques

Introspective method, Naturalistic observations, case history or case studies, and surveys can be clustered together as descriptive techniques. These methods provide different ways to describe behaviour, without any attempt to interfere with the behaviour under study. Descriptive techniques can provide useful information about how different techniques can provide useful information about how different events and behaviors are related to each other. However, descriptive methods do not allow us to say certainly, which events caused which behaviour. Only in experiments do researchers purposefully manipulate events to find out how they cause changes in behaviour.

1. Introspection

Introspection is one of the oldest methods used for investigating consciousness. It is a process of analysing a conscious experience by reporting the sensory qualities of the stimuli that are experienced, without the intrusion of meaning or interpretations. It is a method of describing one's experiences or patterns of behaviour.

The word Introspection means 'to look within.' In introspection, subjects were presented with a particular stimulus or task and asked to describe their mental state as thoroughly as possible. For example, subjects might be asked to report on their conscious experience while solving a problem in logic. Edward Titchner used the method 'introspection' to reveal the basic elements of consciousness by reporting the sensory qualities of the different stimuli they experience-qualities such as colour, size, and intensity and even feelings such as pleasure and pain.

William James also used introspection, but he used it in an informal way to analyze his own conscious experience. Following James, at the turn of the twentieth century, the use of introspection to study consciousness led to a dispute. There are two major reasons for the eventual failure of introspective method. The first is that there was no way of determining the validity of the subject's introspective reports. If, for example, subjects reported feeling sleepy

during a certain task, it was impossible to confirm this statement with an objective measure of sleepiness. Scientific methods require objective evidence. The introspective method yields only subjective evidence and is therefore scientifically questionable.

The second reason is that different subjects often gave different reports of their conscious experience even though the stimulus or task remained the same. If results are not replicable from study to study, there can be no basis for scientific progress.

By the early twentieth century, psychologists recognized the inadequacies of introspection. This had two major consequences. First, psychologists began to develop other research methods, such as the behavioral method, that did not rely on subjective reports of inner experience. Secondly, the goal of establishing a science of human consciousness was abandoned and interesting the method of introspection quickly waned.

2. Naturalistic Observation

Naturalistic observation is a method within the descriptive research category that is often the beginning point of scientific research on a topic. Just as the name states, phenomena of interest are systematically observed as they occur in nature. The researchers strive to avoid adding, eliminating, or rearranging variables that would in any way impede the naturally occurring flow of events.

Although the researcher observes behavior in its natural setting, the researcher observes systematically. Systematic observation means that from the wide array of ongoing behavioural interaction, the researcher selects the focus and categories of her/his observations. In addition to the degree of control added by the systematic nature of the observations, in this method, the researcher need not rely on the ability or willingness of people to record their own behaviour. Questions of competence and throughness of record takers and possible misunderstandings of items are not issues with naturalistic observation. The data in naturalistic observation are records of observed behaviour and not people's reports of their own behaviour. This method, thus yields data of higher validity than self-report methods, especially when dealing with certain topics such as illegal behaviour (drug use, traffic violations or socially unacceptable behaviour).

Systematic observation, the means of the naturalistic observation method is probably the oldest and in some ways most basic form of scientific research. In addition to observing systematically, researchers with goals of description also organize systematically consolidating their data into readily usable forms.

Focusing Observations

Systematic observation means that there has been a decision made as to the focus of the researcher's observations of a researcher entered a situation and recorded the **most entertaining**, **most unusual**, or **most boring events**, this would be less than objective and scientific. A degree of focus or selective attention is necessary to yield scientifically usable data. Behaviour is a continuous series of actions and reactions: some degree of focus must be imposed on these complex interactions in order to record and analyse these behaviours. The focus of the observation can be based as in studies with a descriptive goal or narrow, as in studies with the correlational goal. The focusing decision is made as the researcher operationalized the hypothesis. For example, a researcher wants to gather data on the nature and frequency of peer interactions among preschool children. He may address a hypothesis such as; "Contemporary nursery school children spend atleast one-third of their school time engaged in positive peer interactions. Such descriptive data could be obtained by naturalistic observation. The researchers would sit quietly in the preschool classroom and record the frequency and content of all peer interactions. Although broad, this focus is systematic and the researcher would record only the events addressed in the hypotheses and would exclude other events. The intrusion of subjective

judgments is minimized and objectivity is therefore facilitated by the systematic nature of the observations.

The Role Of The Observer

In addition to the focusing of the observation and the development of a valid, reliable recording instrument, another major concern in naturalistic observation is the role of the observer. The observer strives to gather data as thoroughly and accurately as possible without disrupting the naturally occurring events. Baker and Wright used naturalistic observation as one part of a large study designed to describe life in a small town. A few select children (age eight to ten) were followed from awakening to bedtime by any one of nine observers who rotated the job, recording all conversations and behaviours engaged in by the children during their waking hours. The physical presence of an observer can significantly reduce subjects activity levels even within a laboratory setting.

Since people's reactions are often altered by an awareness of being recorded, and since the researcher wants to approximate the natural environment as closely as possible, the observer needs to be as unobtrusive as possible, the observer needs to be as unobtrusive as possible. Ideally, the observer is so nonobvious that the participants view him/her as part of the natural environment. Several procedures have been designed toward this end with varying degrees of success

One Way Mirrors And Recording Equipment

One procedure for minimizing the effects of an observer is to avoid the observer's physical presence through the use of one-way mirrors or audio and/or video recorders.

Reactivity to audio or video recording equipment can be effectively avoided only if the placement of the microphone or the camera is unobstrusive. Another disadvantage of recording equipment is the difficulty of achieving high-quality tapes. The impact of recording equipment is at times less than the impact of the physical presence of an observer, but their use does not eliminate the reactivity question, nor are they functional in high activity settings.

Concealed Observers

Beside being concealed behind oneway mirrors or camera, observers can be physically concealed within the setting. A more feasible and much more ethical means of concealment is for the researcher to fade into the background.

Although low in reactivity, this procedure has serious problems in addition to the ethical question of using people for research without their consent, there is a high probability of not being able to record all that is desired because of the high mobility of the subjects.

Advantages Of Naturalistic Observation

Naturalistic observation offers several advantages as a method of descriptive research. More than any other method in either the descriptive or experimental category, naturalistic observation provides procedures for viewing the world as it is without intervention or structure. Since the data are gathered as the behaviours occur, with a minimum of the researcher's control over research conditions, the results are more likely to be generalizable to everyday application than results obtained by other methods.

High in generality of results, this method of naturalistic observation is also recommended when descriptions of sequences or chains of behaviours are desired. The complex matrix of actions and

reactions that constitute our daily lives is not restricted with this research approach. This method, is especially advantageous for use both as a beginning step in research on a topic and as a final check of the generality of causal results obtained in structured experimental settings.

Limitations

The Naturalistic observation is the data gathered with a minimum of control or manipulation and behavioural sequences that are allowed to flow in an uninterrupted fashion. Naturalistic observation like other descriptive method, cannot be used to test cause-and-effect statements. Within the matrix of human interactions, confident statements of cause cannot be generated with an absence of control over the environment. These control procedures are not features of naturalistic observation.

The behavioural categories must do an adequate job of reflecting the world and the theory. The observation instrument must be constructed in such a way to facilitate easy way of recording and inter-observer agreement. Insufficient observer training can decrease both reliability and validity.

Consequently, this method is more time consuming to design and executes than other types of research.

Naturalistic Observation With Intervention

This category includes procedural options that are basically naturalistic observation but involve a higher degree of control by the researcher than naturalistic observation. The most common procedural options of naturalistic observation with intervention are the participant observation and structured naturalistic observation.

Participant Observation

This procedure was designed as a means of reducing peoples reactivity to an observer. Observers withhold their identity as researchers and become a participant in the group of interest. Once accepted as a group member, the researcher's opportunity for unobtrusive observation is excellent. People are unlikely to suspect that their behaviour is being recorded for research purposes by one of their own members. Consequently, they are highly unlikely to modify their normal behavioural patterns. In some situations, naturalistic observation data would be impossible to gather except by participant observers.

Advantages

The main advantage of the participant observer procedure is that it allows for the gathering of some data that would be quite difficult to obtain otherwise. In addition, the position of participant observer allows the researcher to record the behaviour of group members while potentially gaining insight into their feelings. This insight may result in a more accurate interpretation of events than would be possible by a less involved observer.

Disadvantage

As the participant observer purposely interacts with the objects of the study, it is possible that in such interactions the observer influences the group and becomes an agent to social change instead of an observer of social change. Another disadvantage is that the observer's own identification with the group may result in blindness to key behaviours. Therefore, the use of participant observation is not a recommended procedure for beginning students.

Structured Naturalistic Observation

In this type of naturalistic observation, the researcher intervenes in the normal flow of events by creating a standard situation for all subjects and then observes the results. Once the situation is created, the researcher does not intervene with the unfolding of behavioural interactions. This procedure is used to investigate hypotheses not testable through true naturalistic observation because of an inability to identify the important elements in the situation or because of the high mobility of the subjects.

For example, **Jeffers** and **Lore** used structured naturalistic observation to observe the play interactions of pairs of nursery school children in (1) an environment unfamiliar to both children and (2) a familiar environment. The researcher recorded the verbal and physical interactions during the play, such as the objects played with and active or a passive roles of the children. The results indicate that children in familiar environment initiated more positive and more aggressive social interactions than in an unfamiliar environment.

Both this procedure and the participant observe procedure carry the same design issues, advantages and limitations as true naturalistic observation.

3. Case History Method

The detailed study of a single individual's behaviour over an extended period of time is called a case history or case study. In a typical case study, the researcher presents a detailed description of the personality and behavioural characteristics of an individual. The goal of this procedure is to provide a detailed description of a person over time as opposed to the naturalistic observation.

Data are accumulated in a series of interviews, generally gathered with in a therapeutic setting. Although naturalistic observation are rare in case-studies, an objective of this method is to describe as many aspects of one individual's life as possible. During treatment, the researcher/therapist records his/her repeated observations of the person as well as the person's own feelings and behaviour self-reports. From these sources, the therapist/researchers reconstructs the person's past and interprets the significance to the individual of those past and current events.

As with the other specific methods within the descriptive category, the researcher selectively observes and records. Once the data are complete, the researcher also creates a structure that is an organizational basis for the fact of the case. A case study is not just a reiteration of facts; it is also an organization and integration of the facts. This selectivity of observation, recording, and subsequent analysis of the data is guided by theory. Consequently, there is often more than one possibly accurate interpretation of the same facts. Thus the consumer of case study research must be aware of the difference between the facts and theoretical interpretation of the case. Each segment can be used for its own merit, but an awareness of the difference heightens the scientific utility of this procedure.

Use of Case Studies

Although case studies are one of the least systematic approaches to gather descriptive data, this method is useful in two main ways. First, the case study is the chosen research procedure when a particular case is unique, such as a person with multiple personalities. It is unlikely that a researcher could easily locate many number of people with this problem in order to conduct another type of research. A detailed description of unusual cases as they are encountered by professionals can collectively serve as a data bank for further speculation and understanding.

One case history proves nothing, but a number of case histories that together can best be explained by a particular theory that can have a scientific impact.

Second, case studies can be useful to illustrate theoretical points or therapeutic techniques. Clear representation are those in which abstract theoretical terms are exemplified with interesting examples, such as case studies.

Advantage and Limitation of Case Studies

The advantage of case studies is that they provide in-depth descriptions of individuals that can be useful for further speculation and theorizing. Case studies, more than any other procedure try to show the flow of human interactions. An attempt is made to describe individuals in their full complexity instead of in behavioural segments or categories. The resulting potential for multiple explanations and interpretations of case study data is both:

1. An advantage in the richness of hypotheses that can be generated.
2. A limitation in that the procedure is unlikely to supply conclusive evidence for the hypothesis testing of a specific theoretical view point.

4. Surveys

Surveys study large and small population of selecting representative samples chosen from the population to discover the relative incidence, distribution and interrelation of psychological and sociological variables. In survey research, the researcher simply collects data about psychological and sociological variables or characteristics of a sample that represents a known population in natural settings. The survey research which involves samples usually is called as 'Sample Survey'. Survey researchers rarely study whole population.

Surveys research is concerned with conditions or relationship that exist, opinions that are held, processes that are going on, effects that are evident or trends that are developing. Surveys more often are employed to determine the number of people who have a certain opinion or attribute or engage in certain behaviour, and the degree of relationship if any between any of the preceding.

Steps In Conducting A Survey

The important steps involved in survey research are (1) planning (2) collecting facts (3) Analyzing and presenting the findings.

1. Planning a survey

The task of planning a survey should preferably be assigned to a committee composed of representatives from various community organizations and agencies. The committee's role is to help in winning the co-operation of population in the field work and laying foundation for acceptance by the community of the recommendation of survey in future. The committee may be charged with drawing up a plan covering the following points (a) Statement of objective: A clear statement of objectives should always be the starting point in any survey. Objectives guide the researcher in a right direction. They define the area and scope of the survey. (b) Knowledge about similar studies: This is necessary to avoid duplication of the work and to gain a fresh method of approach from assessment pitfalls already suffered in the previous studies. (c) Preparation of a work schedule and budget (d) Arrangement of publicity (e) Determination of sample (f) Preparation of a questionnaire/schedule and selection, training and supervision of field investigators. The field investigators must be trained both in general interviewing procedures and in questions specific to a given survey. There should be effective supervision of all field work.

2. Collecting the factors

When planning is completed, the survey team moves into the field and undertakes the field work. The general principle of field work is to maintain good rapport with respondents. Misunderstandings of the respondents should be removed.

3. Analyzing the facts

This includes three states (1) Editing (2) Classifying and (3) Codifying the data. At first, any possible inconsistencies or incompleteness be checked. Attitude and opinion surveys require careful content analysis.

4. Presenting the facts

It is the last stage in which significant facts and comparisons are highlighted.

Types Of Surveys

There are three general survey methods: Mail surveys, personal interviews, and telephone interviews. As was true of sampling techniques, there is no one best method for all circumstances, each survey method has its own advantages and disadvantages. The challenge facing the survey researcher is to select the methods that best fits the problem under study.

1. Mail Surveys:

Mail surveys represent the most common means of distributing self-administered questionnaires. A principal advantage of mail surveys is that they can be done relatively quickly. Because they are self-administered, mail surveys avoid the problems of interviewers bias. Among the three types of surveys mail surveys are the best for dealing with highly personal or embarrassing topics, especially when anonymity of respondents is preserved.

There are many disadvantages to mail surveys than the advantages. Some of these advantages are less serious than others. For instance, the respondent will not be able to ask questions if a portion of the questionnaire is unclear the questionnaire is not self-explanatory. The second minor disadvantage is that the researcher has little control over the order in which the respondent proceeds through the questionnaire. Different respondents may follow different sequence, and the order of question may affect the way respondents answer certain of them. When all respondents answer, some do not follow the same sequence; the variability among their responses to a given question is likely to increase. A major problem with mail surveys, is one of bias-namely response bias. Response bias is a threat to the representativeness of a sample because not all respondent complete the survey. The response rate in mail survey is generally low.

2. Personal Interviews

In personal interview, the respondents are usually contacted in their homes and trained interviews administer the questionnaire. The personal interview allows greater flexibility in asking questions than does the mail survey. In this the respondent can obtain clarification of unclear questions, and the trained interviewer can pursue incomplete or ambiguous answers to open-ended questions. The interviewer controls the sequencing of question and can ensure that all respondents complete the questionnaire in the same order. The response rate of personal interviews has been much higher than that to mail surveys.

The disadvantages of this method: the high cost, results because the use of trained interviewers is expensive in terms of both money and time. The second, disadvantage involves the potential for interviewer bias. Interviewer bias occurs when the interviewer tries to adjust the wording of a question to fit the respondent or records only selected portions of the respondent's answers. The best protection against interviewer bias is highly motivated well-paid interviewers who are trained to follow the wording of each question exactly, to record responses accurately, and to use probes judiciously. The interviewers should be closely supervised by the surveys director.

A frequently used variation of the personal interview is the focused interview. The focused interview is done in a group setting with the researcher trying to learn from the respondents more about the reasons for the attitudes of opinions that they hold. Focused interview is used extensively in market research to determine consumers' reactions to current or new products or services. Focused interviews are increasingly being used as part of the strategic planning process by civic organization. There is less of an emphasis in this approach on obtaining a quantitative summary of the views across all respondents. Instead, the goal is to obtain a qualitative description of the ideas that emerge from a guided group discussion.

3. Telephone Interviews

Telephone survey is the method of choice for most brief surveys. Interviews can be completed more quickly when contacts are made by phone. This method also provides access to dangerous neighbourhoods, locked buildings, and respondents would be available only during evening hours. Phone surveys usually have much higher response rates and provide greater flexibility.

The telephone survey is not without its drawbacks. There is a possible selection bias when respondents are limited to those people who have telephones and the problem of interviewer bias remains. There is a limit to how long respondents are willing to stay on the phone, and the fact that responses are being given to a 'faceless voice' may influence how people respond. In spite of these limitations, the high response rate and flexibility of the telephone interview make it the method of choice for nearly all brief surveys.

The Experimental Method----------

The experimental method is the technique of discovering information by means of experimentation. An experiment is a series of observations carried out under controlled conditions for the purpose of testing a hypothesis. In using the experimental method, the researcher systematically manipulates one or more variables to determine how those variables affect behaviour. Researchers conduct experiments primary to establish cause and effect relationships.For instance, a researcher who wanted to know whether high sugar diets contribute to children's hyper activity might begin by finding similar hyperactive children and dividing them into an experimental group and a control group. The experimental group is a group for whom the experimenter alters some feature of the environment. In this case, an experimental group could be a group of hyperactive children put on a low sugar diet. A controls group is a comparison group that is treated identically, except that it is not exposed to the crucial experimental manipulation. In this case, a control group might consists of a group of hyperactive children left on a normal diet. To determine whether sugar indeed played a causal role in hyperactivity, the activity levels of children in the experimental group would be compared to those of the control group.

In an experiment, the variable that is manipulated is called the independent variable while the behaviour that is measured is called dependent variable. Independent variables are manipulated and-dependent variables are measured. In a formal experiment, subjects must be assigned to treatment conditions randomly so that subject characteristics are evenly distributed across the different conditions.

Experiments are subjected to a number of threats, or biases. Experimenter bias occurs when an experimenter unintentionally transmits cues to subjects about their expectations regarding their behaviour in a given experimental conditions. Subject expectations can also bias an experiment. To help eliminate bias, researchers use placebos and double-blind procedures.

Advantages

In the experimental method, the experimenter has complete control over the laboratory situation. The extraneous variances are controlled. Measurements in a laboratory are more precise because they are made with precision instruments. Laboratory experiments have high internal validity. When some cause and effect relation is discovered between two variables in well executed laboratory experiment, one can have considerable confidence in the result because one knows that no other outside variable which was held under check can account for this relationship. Laboratory experiments can be replicated, that is, results of one study can be reproduced in a later study.

Limitations

Experimental method is in many ways the best method for gathering scientific information. But it has limitations. Obviously it cannot always be used, especially if the experiment might be dangerous for the subjects. A second limitations is that the method is restricted in its applications. The conclusion derived from an experiment may be limited to the artificial experimental situation. The third limitation is that the method sometimes # with the very thing it is trying to measure.

Field Experiments and Quasi Experiments

A Field experiment is carried out in the natural setting of the people who are being studied. It tries to establish conditions that are as close as possible to those of a true laboratory experiment. Manipulation of independent variables and random assignment of participants to different groups does take place. Its goal is to allow causal conclusions to be drawn from research conducted in natural settings. In these studies the ecological validity is lesser than what we find in the laboratory experiments, it is more time consuming and expensive.

There are many variables, which cannot be manipulated directly. There are ethical problems in conducting experiments by manipulating conditions that may create gamblers, drug abusers and broken families, etc. There are obvious moral difficulties in undertaking studies within the truly experimental paradigm. However, study of these problems and issues is useful for making human life better. The answer to this kind of problem is to adopt the strategy of **quasi experiments**. They utilize the qualities of observation and correlation and combine them with experimentation. Usually such studies have a subject variable as an independent variable. Such variables are selected rather than varied by the experimenter. Thus a quasi experiment attempts to manipulate an IV in a natural settings using naturally occurring groups to form experimental and control groups. For instance one may consider disaster exposed group exposed to some kind of special treatment as an experimental group and compare the same with another group who has not been exposed to similar treatment. It may, however, be noted that such studies lack the high degree of control over extraneous variables.

Correlation Method----------

There are many variables, which are important but cannot be directly manipulated. The variation in variables is obtained through some technique of selection. For instance if you are interested in knowing the relationship between intelligence and adjustment, you cannot create people with

high or low levels of intelligence. You cannot manipulated intelligence of the people or vary their adjustment level. What you can do is to find out people who vary in the level of intelligence with the help of an intelligence test. Based on the performance on intelligence test you may select people with high and low levels of intelligence and then assess their levels of adjustment. The use of this kind of selection procedure is frequently used in many studies in which psychologists may be interested. Such studies use correlational method of inquiry.

In correlational studies the goal of a researcher is to describe the strength of the relationship between two or more variables. The more strongly events are correlated, the more effectively we can predict one from the other.

People often tend to confuse correlation with causation. For instance high blood pressure is related to inability to manage stress. In this situation one is often tempted to infer a causal relationship. However, the possibility is there that the relationship is not true or is due to operation of a third variable. Researchers measure different variables to see if change in one variable is related to change in another variables. Such studies are useful where direct manipulation of variables would be undesirable, unethical or impossible. Correlational analysis is better than simple observation in the sense that it allows the investigator to focus on specific aspect of the problem under study.

Usually when we want to understand the inherent properties of person (e.g., age, sex, aptitude, personality, ability etc.) or deal with background variables related to prolonged exposure (e.g., rural, urban, tribal background; socio-economic status, type of family, child rearing pattern) we need to use non-experimental studies.

Correlational study is preferred over other strategies when:

1. the focus of the investigation is new and we have very limited knowledge about the relevant variables.
2. it is impossible to manipulate the variables, and
3. it is unethical to manipulate the variables.

In Correlational studies, we cannot conclude that a factor produces or causes an other, because there are likely to be a number of factors that vary simultaneously. The word correlation comes from co-relation: literally, the relation between two variables. Correlations can be represented in a diagrammatic form know as scattergram or represented as correlation coefficient. The value of correlation, as determined by appropriate statistical test, ranges between +1(perfect positive correlation) to –1(perfect negative correlation). Perfect correlation are rare phenomena. Values closer to either +1 or –1 indicate stronger relationship. Correlation helps the researcher to identify the direction and strength of relationships between two or more variables. They help to predict one variables on the basis of other variable. However, as pointed out earlier, one must not forget that a correlation does not indicate a cause.

Simulation

Simulation means having the experience or from of reality without the presence of actual reality. It involves imitation and pretension. In psychological research simulation is used as a method, which provides a way out to meet the problems in the use of deception to produce the effect of desired variables. Deception involves providing wrong information and misguiding the participants to manipulate variables of interest and observing their effects on behaviour. This kind of method is ethically inappropriate. One option for deception is to study the behaviour in natural settings. Another alternative is simulation.

In simulation study the investigator designs a laboratory situation that evokes the psychological processes of interest that are present in a real life situation. Simulation involves active role-play. The participants take different roles and perform various activities. Aspects to situations can be

varied to determine their effects on chosen variables to understand some phenomenon in a systematic manner.

Research Design----------

Meaning of research design: Research design is a plan or strategy for conducting the research. Research designs are specific to the types of research. Research is a serious enquiry into a problem. When research is conducted according to a well designed structure it is most likely to be accurate and purposeful. Research is the process of attempting to answer researchable questions. A research design is a more general plan and that a single design may contain and require the use of several methods. **Kerlinger** (1973) has identified two basic purposes of research design: (1) to provide answers to research questions and (2) to control variance. Research design sets up the framework for adequate tests of relations among variables. Research problem suggests how many observations are to be made, which variables are active and which are attributes. A design tells us what type of statistical analysis to use. Finally an adequate design outlines possible conclusions to be drawn from statistical analysis. The research design ensures that a researcher obtains usable results.

The concept of controlling variance: All research is conducted for the purpose of explaining variance-the fact that all individuals are not the same or have the same score. Also when the variance of any one variable is considered, it may be influenced by any number of factors. Variance in achievement, for example may be due to aptitude and motivation etc. The manifestation of variance can be explained by an example. A high school teacher is studying the effects of three different methods of motivation on achievement in physics. The research problem is stated as follows: "A study of the effects of motivation on the performance of high school students". The problem implies that an experiment should be conducted since motivational training an independent should be conducted since motivational training an independent variable of primary interest will be manipulated by the experimenter. Motivational training has three levels say M1, M2, and M3. The dependent variable is performance in the school subjects, physics which can be measured through achievement tests administered after training. Ninety students enrolled in the same school and taught by the same teacher are tested on achievement. There will be 90 scores. There scores will not be the same and hence the distribution will have variance and it may be due to different effects and since motivation is the independent variable, the researcher has to determine whether or not they have different effects. Some students may be more able to do then others and other physical and mental conditions may cause validity. Therefore it is important to study the effects of variables on the dependent variable. Controlling variance means being able to explain what is causing it.

Procedure for controlling variance:

There are four ways by which controlling variance can be done.

(a) Randomization.
(b) Building conditions on factors into the design as independent variables.
(c) Holding conditions or factors constant.
(d) Statistical adjustments.

(**a**) **Randomization**: In the above example the same person gives training to 90 students, having three groups of 30 students each, each group trained by different motivational method. Assume that the 90 students form a representative sample of some larger population, but they are a heterogeneous group with respect to ability level is randomly distributed to three groups and we expect its effect to be the same in each group of 30 students.

It can also be noted that in this example other variables associated with the students for examples anxiety is distributed randomly among the three groups. Mathematical knowledge related to performance in physics is also randomly distributed.

(b) Building in factors as independent variables: Of the 90 students, if the top 45 students are classified as 'Higher' and the remaining 45 as 'lower' ability level, then we will have ability level as independent variable with two levels. Fifteen students of each of the two ability groupings will be randomly assigned to each method.

Research Design with ability level built in as an independent variable

Method Ability	**Students Randomly assigned**		**Dependent Variables**
M_1	High	15	Performance
	Low	15	
M_2	High	15	
	Low	15	
M_3	High	15	
	Low	15	

(c) Holding factors constant: Holding a factor constant consists of reducing a variable to a constant. For example, the trainer could reduce ability level to a constant if only students with one defined ability say those scoring between 98 and 108 on an I.Q. test are included in the study. If ability level does not affect performance on the dependent variable, its effect would now be diminished. Only students within a particular I.Q. range would be randomly selected. This number will be less than 30 per group. Here the results arrived generalize only to the restricted group.

(d) Statistical control: Statistical control is attained through computational procedures. When the data are analysed, the variable of ability level in physics assumes that an ability measure consisting of performance on I.Q. test is available for each of the 90 students. There may exist a relationship between I.Q. test scores and performance on the physics test such as high scores on one go with the high scores on the other. If physics test scores are adjusted ability on the physics test scores. This can be done using a sophisticated statistics and the specific statistics procedure commonly used is the analysis of covariance using procedures for control in combination. The four procedures for enhancing control can be used singly or in combination with each other. The four variables (in addition to the independent variable, i.e., motivation) and their methods of control are as follows.

Variable	**Method of Control**
Science background of the student.	Randomization

Trainer	Build in as an independent variable. The same trainer trains everyone in the sample. The same teacher teaches physics.
School	Reduced to a constant. Students of only one school are included.
Ability level	Statistical control. The I.Q. test scores are based.

The purpose of controlling variance is to enhance the interpretation of results so that the researcher can tell what effects, if any, the variables are having. When the research design is developed, the researcher has to think about controlling variables. Careful designing is essential to enhance the validity of the results.

Characteristics of a Good Research Design

A good research design must not only be appropriate but must yield results from the research that can be interpreted with confidence. Four characteristics of a good research design are identified. However they cannot be considered mutually independent of each other. They are, free from bias, free from confounding, control of extraneous variables and statistical precision for testing hypotheses.

a. Free from bias: This means that the data and the statistics computed from them do not vary in any systematic way except as expected on the basis of random fluctuations. The differences that appear can be attributed to the independent variables under study. Bias can enter into the data in a number of ways, including biased assignment of the individuals to the experimental method.

b. Free from confounding: A good research design should eliminate confounding of variables or keeps it to a minimum so that we can separate effects and we can interpret results without confusion. Two or more variables are confounded if their effects cannot be separated. In the physics example, if there are three trainers instead of one, trainer and type have been confounded. If the students trained in one type of motivation score higher on the physics exam than those of the other two types, we will not know whether the higher performance is due to one type or to the trainer. The effects of trainer and type of motivation cannot be separated because each trainer uses only a single type.

c. Control of extraneous variables: the control of extraneous variables means that the influences of independent variables outside to the purposes of the study are minimized, nullified or isolated. In other-words, the variance of such variables is in effect reduced to zero or near zero. There are three ways to control extraneous variables. For example if we select only one sex for an experiment, then we can be sure that sex cannot be contributing independent variables. Here we lose the power of generalization. For instance, if we use only boys in the experiment, we cannot say anything about the relation understudy with girls.

The second method to control extraneous variance is through randomization. Theoretically randomization is the only method of controlling all possible extraneous variables. This does not mean that the group should be equal in all the possible variables. By chance, the groups can be unequal but the probability of their being equal is greater.

The third means of controlling an extraneous variable is to build it into the design as an independent variable. For example, if sex is to be controlled, then it can be added as another independent variable.

The fourth way to control extraneous variance is to match subjects. The basic principle is to split a variable into two or more parts. (example high & low intelligence) and then randomize within

each level, but care should be taken on the subjects which are matched. They should be related to the dependent variable.

d. Statistical Precision for testing hypothesis:

Another characteristic of a good research design is that it will provide appropriate data with enough precision to test those hypotheses that require statistical tests. In statistical sense, precision is increased as random (or error) variance is decreased.

Experimental Design Terminology----------

The group in an experiment which receives the specified treatment is called the ***Treatment Group*** or the experimental group. However, the term ***Control Group*** refers to another group assigned to the experiment, but not for the purpose of being exposed to the treatment. Thus, the performance of the control group usually serves as a baseline against which to measure the effect of the full treatment on the treatment group.

A ***variable*** refers to almost anything under the sun. There are only two kinds of stuff in the world for researchers: variables and constants. As a result, almost any concept, or thing, or event they are interested in, that varies or can be made to vary, and that is related to their research can be called a variable. Researchers pay particular attention to variables that may influence the results (this is of MUCH concern to researchers).

Extraneous variables (external to the experiment) are variables that may influence or affect the results of the treatment on the subject.

A variable of specific experimental interest is sometimes referred to as a ***factor***. Ordinarily the term factor. Ordinarily, the term is used when an experiment involves more than one variable. These variables are often identified as factors and are labeled "Factor A" and "Factor B," etc. ***Level*** refers to the degree or intensity of a factor. Any factor may be presented in one or more of several levels, including a zero level.

Randomness refers to the property of completely chance events that are not predictable (except in the sense that they are random). If they are truly random, examining past instances of occurrence should give the researcher no clues as to future occurrences. Thus, if we were to predict outcome from perfect pairs of dice rolled in an unbiased way (which are random events), previous rolls give no clue. Randomness becomes important in the design of the experiments primarily in the assignment of subjects to groups. Researchers feel more secure about the results of their studies if subjects have been randomly assigned to groups. ***Random assignment*** of subjects to groups tends to spread out differences between subjects in unsystematic (random) ways so that there is no tendency to give an edge to any group.

Randomization, or random assignment, refers to a technique of assignment or ordering such that no consistent or systematic effect in the assignment is tied in with the method. Elimination of such systematic influence upon assignment or selection allows for chance assignment. Approved ways of generating chance assignments involve tables of random numbers or the use of computer software with random number generators. However, typically, researchers frequently resort to simple counting off, flipping a coin, and other short cuts.

Another way of selecting subjects is simply to use intact groups: such as all the students in a given classroom, or all of the patients in a hospital. Researchers are usually worried whether the students were assigned to the classroom in a non-random way, or whether certain patients self-selected a hospital for a particular reason. The problem is whether some subtle factors were operating to exert a bias of selection factors in the assignment to groups.

Ex post facto refers to causal inferences drawn "after the fact." For in the ex post factor study, the causal event of interest has already happened. These are known as non-experimental studies and are often contrasted with experimental studies. A typical example of this type of research would be to compare two groups of patients in a hospital, one treated with Drug A and the other treated with Drug B and then trying to infer a difference in the performance of the two drugs.

Variance refers to the variability of any event. If one uses a fine enough measuring device, one can find differences between any two objects or events.

The inside logic of an experiment is referred to as ***internal validity***. Primarily, it asks the question: Does it seem reasonable to assume that the treatment has really produced the measured effect? Extraneous variables which might have produced the effect with or without the treatment are often called "threats to validity."

External validity, on the other hand, refers to the proposed interpretation of the results of the study. If asks the question: With what other groups could we reasonably expect to get the same results if we used the same treatment? If Treatment X resulted in lowered blood pressure in middle age men, could you logically claim that it will produce the same effect in older women?

Blocks usually refers to categories of subjects with a treatment group. For example, we might divide the group into older, middle aged, and younger patients and further divide the groups into a group treated with Drug A and another treated with Drug B. The advantage is to enable us to discover how the treatment affects each of the age groups. For example, we might find that overall, Drug B out performs Drug A, except for older patients, where Drug A out performs Drug B. This phenomenon is known as an *interaction* between treatment (the Drug) and subject characteristics (age).

Interaction refers to variables in the treatment which may interact with each other. It may make a difference whether a variable is used by itself, with another, or with different levels or degrees of another. Higher order interactions are possible. One factor may depend on the presence or absence of two other factors; termed a second-order interaction.

The ***Hawthorne Effect*** refers to the behavior of interest being caused by subject being in the center of the experimental stage, e.g., having a great deal of attention focused on them. This usually manifests itself as a spurt or elevation in performance or physical phenomenon measured. Although the Hawthorne Effect is much more frequently seen in behavioral research, it is also present in medical research when human subjects are present. Dealing with this problem is handled by having a control group that is subject to the same conditions as the treatment groups, then administering a placebo to the control group. The study is termed a ***blind*** experiment when the subject does not know whether he or she is receiving the treatment or a placebo. The study is termed ***double blind*** when neither the subject nor the person administering the treatment/placebo knows what is being administered knows either.

There are six major classes of information with which an experimental designer must cope. They include:

- post -treatment behavior or physical measurement **[P1]**
- pre-treatment behavior or physical measurement **[P2]**
- internal threats to validity **[I]**
- comparable groups **[C]**
- experiment errors **[E]**
- relationship to treatment **[R]**

Grounded Theory (GT)----------

Grounded Theory (GT) is a systematic qualitative research methodology in the social sciences emphasizing generation of theory from data in the process of conducting research.

Introduction

It is a research method that operates almost in a reverse fashion to traditional research and at first may appear to be in contradiction of the scientific method. Rather than beginning by researching & developing a hypothesis, a variety of data collection methods are the first step. From the data

collected from this first step, the key points are marked with a series of **codes**, which are extracted from the text. The codes are grouped into similar **concepts**, in order to make them more workable. From these concepts **categories** are formed, which are the basis for the creation of a **theory**, or a reverse engineered hypothesis. This contradicts the traditional model of research, where the researcher chooses a theoretical framework, and only then applies this model to the studied phenomenon

Four Stages of Analysis

Stage	Purpose
Codes	Identifying anchors that allow the key points of the data to be gathered
Concepts	Collections of **codes** of similar content that allows the data to be grouped
Categories	Broad groups of similar **concepts** that are used to generate a **theory**
Theory	A collection of explanations that explain the subject of the research

Development

It was developed by two sociologists, Barney Glaser and Anselm Strauss. Their collaboration in research on dying hospital patients led them to write the book Awareness of Dying. In this research they developed the constant comparative method later known as Grounded Theory.

Split in methodology

Since their original publication in 1967, Glaser and Strauss disagreed on 'how to do' GT resulting in a split in the theory between Glaserian and Straussian paradigms. This split occurred most obviously after Strauss published *Qualitative Analysis for Social Scientists* (1987). Thereafter Strauss in 1990 published *Basics of Qualitative Research: Grounded Theory Procedures and Techniques* together with Juliet Corbin. This was followed by a rebuke by Glaser (1992) who set out, chapter by chapter, to highlight the differences in what he argued was original grounded theory and why, according to Glaser, what Strauss had written was not grounded theory in its intended form. This divergence in the GT methodology is a subject of much academic debate, which Glaser (1998) calls a "rhetorical wrestle".

According to Kelle (2005), "the controversy between Glaser and Strauss boils down to the question whether the researcher uses a well defined "coding paradigm" and always looks systematically for "causal conditions," "phenomena/context, intervening conditions, action strategies" and "consequences" in the data, or whether theoretical codes are employed as they emerge in the same way as substantive codes emerge, but drawing on a huge fund of "coding families. Both strategies have their pros and cons: novices who wish to get clear advice on how to structure data material may be satisfied with the use of the coding paradigm. Since the paradigm consists of theoretical terms which carry only limited empirical content the risk is not very high that data are forced by its application. However, it must not be forgotten that it is linked to a certain micro-sociological perspective. Many researchers may concur with that approach esp. since qualitative research always had a relation to micro-sociological action theory, but others who want to employ macro-sociological and system theory perspective may feel that the use of the coding paradigm would lead them astray."

The Glaserian strategy is not a qualitative research method, but claims the dictum "all is data". This means that not only interview or observational data but also surveys or statistical analyses or "whatever comes the researchers way while studying a substantive area" (Glaser quote) can be

used in the comparative process as well as literature data from science or media or even fiction. Thus the method according to Glaser is not limited to the realm of qualitative research, by Glaser called QDA (Qualitative Data Analysis). QDA is devoted to descriptive accuracy while the Glaserian method emphasizes conceptualization abstract of time, place and people. A grounded theory concept should be easy to use outside of the substantive area where it was generated.

Criticism

Critiques of grounded theory have focused on its status as theory (is what is produced really 'theory'?), on the notion of 'ground' (why is an idea of grounding the result important in qualitative inquiry?) and on the claim to use and develop inductive knowledge. With its quasi-scientific procedures, grounded theory seems to be aping the methods of the natural sciences and making claims to explanation and prediction that are unwarrantable in social science. These criticisms are summed up e.g. by Thomas and James (2006).

Grounded theory was developed in a period when other qualitative methods were often considered not scientific and became the main qualitative method accepted as academic enough. Thus, especially in American academia qualitative research is often equalled with grounded theory. This is criticized by qualitative researchers using other methodologies (such as traditional ethnography, narratology, storytelling, etc.).

FOCUS GROUP DISCUSSION

OBJECTIVES

1. **Identify** the purpose, uses and limitations of the Focus Group Discussion (FGD) as a method of data collection in research.
2. **Conduct** a FGD, analyze the data and report on the results.

I. CHARACTERISTICS AND USES OF FOCUS GROUP DISCUSSIONS

A FOCUS GROUP DISCUSSION (FGD) is a group discussion of approximately 6 - 12 persons guided by a facilitator, during which group members talk freely and spontaneously about a certain topic.

A FGD is a **qualitative** method. Its purpose is to obtain in-depth information on concepts, perceptions and ideas of a group. A FGD aims to be more than a question-answer interaction. The idea is that group members discuss the topic among themselves, with guidance from the facilitator.

FGD techniques can, for example, be used to:

1. **Focus research** and develop relevant research hypotheses by exploring in greater depth the problem to be investigated and its possible causes.

   For example:

   A district health officer had noticed that there were an unusually large number of cases of malnutrition of children under 5 reported from one area in her district. Because she had little idea of why there might be more malnutrition in that area she decided to organise three focus group discussions (one with leaders, one with mothers from the area and one with health staff from the area). She hoped to identify potential causes of the problem through the FGDs and then develop a more intensive study, if necessary.

2. **Formulate appropriate questions** for more structured, larger scale surveys.

   For example:

   In planning a study of the incidence of childhood diarrhoea and feeding practices, a focus group discussion showed that in the community under study, children below the age of 1 year were not perceived as having ‘bouts of diarrhoea’ but merely ‘having loose stools’

that were associated with milestones such as sitting up, crawling, and teething. In the questionnaire that was developed after the FGD the concept 'diarrhoea' was therefore carefully described, using the community's notions and terms.

3. **Help understand** and solve **unexpected problems in interventions**.

   For example:

   In District X, the recent national (polio) immunisation days (NID) showed widely different coverage's per village (50-90%) and in a number of villages a marked decrease in coverage was observed compared to last year. Eight FGD were held with mothers, two in town, three in rural villages with a marked decrease in NID coverage and three in villages with a high coverage throughout. It appeared that overall, the concept NID had raised confusion. Most people believed that this mass campaign strengthened the children's immunity against *any* (childhood) disease, including malaria and Respiratory Tract Infections. In the villages with a low NID coverage there had been a high incidence of malaria in children immediately after the previous NID campaign and several children died. Mothers therefore believed that the NID campaign was useless.*

   [* This is an adapted version of an study carried out in Bushenyi District, Uganda, by Nuwaha et al.]

4. **Develop appropriate messages for health education programmes** and later evaluate the messages for clarity.

   For example:

   A rural health clinic wanted to develop a health education programme focused on weaning problems most often encountered by mothers in the surrounding villages and what to do about them. The focus group discussion could be used for **exploring relevant local concepts** as well as for **testing drafts** when developing the messages. The messages should be developed and tested in different socio-economic groups of mothers, as weaning practices may differ with income, means of subsistence and education of the mothers. Also ethnic differences may have to be taken into account.

5. **Explore controversial topics**.

   For example:

   Sexual behaviour is a controversial topic in the sense that males and females judge sexual relations and sexuality often from very different perspectives. Sexual education has to take this difference into account. Through FGDs, first with females, then with males, and then with a mixed group to confront both sexes with the different outcomes of the separate discussions (listed on flip charts) it becomes easier to bring these differences in the open. Especially for teenagers, who may have many stereotypes about the other sex or be reluctant to discuss the topic openly (particularly girls), such a 'multi-stage' approach is useful.

Strengths and limitations

Implementation of FGDs is an *iterative* process; each focus group discussion builds on the previous one, with a slightly elaborated or better-focused set of themes for discussion. Provided the groups have been well chosen, in terms of composition and number (see below), FGDs can be a powerful research tool which provides valuable spontaneous information in a short period of time and at relatively low cost.

FGD should *not* be used for quantitative purposes, such as the testing of hypotheses or the generalisation of findings for larger areas, which would require more elaborate surveys.

However, FGDs can profitably complement such surveys or other, qualitative techniques. Depending on the topic, it may be **risky** to use FGDs as a **single tool**. In group discussions, people tend to centre their opinions on the most common ones, on 'social norms'. In reality, opinions and behaviour may be more diverse. Therefore it is advisable to combine FGDs with at

least some key informant and in-depth interviews. Explicitly soliciting other views during FGDs should be routine as well.

In case of very **sensitive topics**, such as sexual behaviour or coping with HIV/AIDS, FGDs may also have their limitations, as group members may hesitate to air their feelings and experiences freely. One possible remedy is the selection of participants who do not know each other (e.g., selection of children from different schools in FGDs about adolescent sexual behaviour), while assuring absolute confidentiality.

It may also help to alternate the FGD with other methods, for example, to precede it by a self-developed role play on sexual behaviour, or to administer a written questionnaire immediately after the FGD with open questions on sexual behaviour in which the participants can anonymously state all their questions and problems. This worked in Tanzania and Nepal.*

* The Tanzania-Netherlands Support Programme on AIDS, Mwanza Region, Tanzania (1990-2000+) and the Family Planning Association of Nepal Project on adolescent health in five districts of Nepal (1999-2003). The adolescent health section of WHO/HQ has developed a Narrative Research Method which is very well suited to help adolescents develop narratives and role plays about their interpretations of sexuality which can profitably precede the single sex and mixed FGDs: World Health Organization (1992) *A story of the sexual experience of young people in eleven African countries; The Narrative Research Method.* Geneva: WHO; World Health Organization (1993) *The narrative research method; Studying behaviour patterns of young people by young people. A guide to its use*, Geneva: WHO.

Another way to ensure confidentiality in a FGD on a sensitive topic is giving participants an option to introduce themselves under any name they would like to use (not necessarily their own). Further, before the discussion, it should be stressed that they may bring up experiences of friends and brothers/sisters as well as their own, and that it is not necessary to bring painful personal experiences in the open.*

II. HOW TO CONDUCT A FOCUS GROUP DISCUSSION

Determine the purpose

A FGD can be regarded as a mini-study. It therefore requires one or two clear objectives. These objectives will guide the research team in the formulation of discussion questions.

Situation analysis

Any FGD requires good knowledge of local conditions. Communities are seldom or never homogeneous. There are always differences between community members, for example in education, political power, gender, economic status and ethnic group. These differences will be reflected in their perceptions of the problems they suffer from and possible solutions. A researcher must be aware of these differences, otherwise (s)he may miss important groups of participants or obtain a hotchpotch of information. Similarly, (s)he must know which key persons or organisations could be good entry points for the selection of participants in the FGDs (e.g.: women's groups, parent associations, youth clubs, etc.). If a FGD forms part of a bigger study, or project, it may be easy to define target groups for the discussions. Otherwise, the first task of the researcher(s) will be to explore the area and identify possible target groups. Interviews with some key informants and a rudimentary situation analysis are then indispensable. The situation analysis should preferably be carried out in a participatory way, with representatives of the study population on which the FGD focuses.

For example:

In an intervention study on sexual health among out-of-school youth in an urban area, the researcher first planned some interviews with key informants. He selected the leaders of a political youth club and of a Christian youth club and some teachers, with whom he thoroughly discussed his research topic. Through them he came in contact with youth of different backgrounds. He let each of the three groups, separated into boys and girls, draw maps of the town and asked

them to mark places which they thought riskful in terms of sexual behaviour (easy contacts, unprotected sex). The drawings formed a good basis for further FGDs but also helped him to identify wider networks of adolescents at risk who had to be included in the study.

Points to be considered when preparing the FGD

Recruitment of participants:

- Participants should be roughly of the same socio-economic group or have a similar background in relation to the issue under investigation. The age and sexual composition of the group should facilitate free discussion.

  Often you therefore need to obtain information on a topic from several different categories of informants who are likely to discuss it from different perspectives in separate FGDs, though in a later stage groups may be joined

  * Always ensure confidentiality of opinions: Ask co-operation from the group members as well, to keep what has been discussed confidential. If group members present very personal problems and need advice or help, this should be followed up after the FGD.

  Participants should be invited at least a day or two in advance, and the general purpose and procedures of the FGD should be explained, in order to obtain their **consent to join**.

- **Selection of participants:**

  If you are an outsider in the research area, you may have to rely on your key informants for the first selection of participants in FGDs. Your key informants to whom you have explained thoroughly the purpose and the process of the FGD might each suggest some individuals who could be invited to a focus group discussion.

  Note that the key informants may select persons similar to themselves so that you do not get an adequate variety of views in your discussion group. So in your explanations be sure to emphasise that you want a group of people that can express a *range* of views, to be able to have a proper discussion. Participants in a first FGD may assist to find relevant participants for other groups.

  Another way of getting participants is to conveniently select individuals in a *systematic* way, to try and ensure a range of views. You might, for example, ask every third or fourth person you find. This method might be more suitable in urban areas.

- **Physical arrangements:**

  Communication and interaction during the FGD should be encouraged in every way possible. Arrange the chairs in a circle. Make sure that there will be no disturbances, sufficient quietness, adequate lighting, etc. Try to hold the FGD in a neutral setting which encourages participants to freely express their views. A health centre, **for example**, is not a good place to discuss traditional medical beliefs or preferences for other types of treatment.

- **Preparation of a discussion guide:**

  There should be a **written** list of topics to be covered. It can be formulated as a series of open-ended questions. Guides for different groups gathered to discuss the same subject may vary slightly, depending on their knowledge or attitudes and how the subject should first be explored with them.

Conducting the session

One of the members of the research team should act as 'facilitator' or 'moderator' for the focus group discussion. One should serve as 'recorder'. The facilitator should preferably be as close as possible to the participants in their characteristics (same sex, roughly same age, etc.).

Functions of the facilitator

The facilitator should NOT act as an expert on the topic. His or her role is to stimulate and support discussion.

- **Introduce the session**

  Introduce yourself as facilitator and introduce the recorder. Let participants introduce themselves with whatever names they wish to use. Put the participants at ease and explain the purpose of the FGD, the kind of information needed, and how the information will be used (for the planning of a health programme, an education programme, etc). Ask permission to use a tape-recorder, let people hear their own voices before the session starts. You might offer drinks and allow some informal discussion before the actual session starts.

- **Encourage discussion**

  Be enthusiastic, lively, and humorous and show your interest in the groups' ideas. Formulate questions and encourage as many participants as possible to express their views. Remember there are **no** 'right' or 'wrong' answers. **React neutrally** to both verbal and non-verbal responses.

- **Encourage involvement**

  Avoid a question-and-answer session. Some useful techniques include:

  —Asking for clarification:
  'Can you tell me more about. . . ?'

  — Reorienting the discussion when it goes 'off the track':
  Saying: 'Wait, how does this relate to. . . ?'
  Saying: 'Interesting point, but how about. . . ?'
  Using one participant's remark to direct a question to another, for example, 'Mrs. X said . . . , but how about you, Mrs. Y?'

  — When dealing with a dominant participant, avoiding eye contact or turning slightly away to discourage the person from speaking, or thanking the person and changing the subject.

  — When dealing with a reluctant participant, using the person's name, requesting his/her opinion, making more frequent eye contact to encourage his/her participation.

- Deal correctly with **sensitive issues**. If you notice that the discussion stops when dealing with a sensitive topic, you could ask participants (if literate) to anonymously write down their responses or opinions on the topic. Alternatively, you could summarise for the group some of the opinions from previous focus group discussions, focusing on one or two major contrasting opinions. Still another strategy is to form *sub-groups*, and to get a member of the sub-group to summarise and present the opinions of their sub-group members after which the whole group can still discuss these opinions.

- **Build rapport, empathise**

  Observe non-verbal communication. Ask yourself, 'What are they saying? What does it mean to them?' Be aware of your own tone of voice, facial expressions, body language, and those of the participants.

- **Avoid being placed in the role of expert**

  When asked for **your** ideas or views by a respondent, remember that you are not there to educate or inform. Direct the questions back to the group by saying: 'What do you think', 'What would you do?' Set aside time, if necessary, after the session to give participants the information they have asked for.

  Do not try to comment on everything that is being said. Don't feel you have to say something during every pause in the discussion. Wait a little and see what happens.

- **Control the rhythm of the meeting, but in an unobtrusive way**

Listen carefully, and move the discussion from topic to topic. Subtly control the time allocated to various topics so as to maintain interest. If participants spontaneously jump from one topic to another, let the discussion continue for a while since useful additional information may surface; then summarise the points brought up and reorient the discussion.

- **Take time at the end of the meeting to summarise, check for agreement and thank the participants**

  Summarise the main issues brought up, check whether all agree and ask for additional comments. Thank the participants and let them know that their ideas have been a valuable contribution and will be used for planning the proposed research, intervention, or health education materials.

- Listen for **additional comments** and spontaneous discussions which occur after the meeting has been closed.

Functions of the recorder

The recorder should keep a record of the content of the discussion as well as emotional reactions and important aspects of group interaction. Assessment of the emotional tone of the meeting and the group process will enable you to judge the validity of the information collected during the FGD.

Items to be recorded include:

- Date, time, place
- Names and characteristics of participants
- General description of the group dynamics (level of participation, presence of a dominant participant, level of interest)
- Opinions of participants, recorded as much as possible in their own words, especially for key statements
- Emotional aspects (e.g., reluctance, strong feelings attached to certain opinions)
- Vocabulary used - particularly in FGDs that are intended to assist in developing questionnaires or health education materials
- Spontaneous relevant discussions during breaks or after the meeting has been closed

It is highly recommended that a tape-recorder be used to assist in capturing information. Even if a tape-recorder is used, notes should be taken as well, in case the machine malfunctions and so that information will be available immediately after the session for discussion.

If there is no reliable tape-recorder available, it is advisable to have **two recorders**.

A **supplementary role** for the recorder could be to assist the facilitator (if necessary) by drawing his or her attention to:

- missed comments from participants
- missed topics (the recorder should have a copy of the discussion guide during the FGD)

If necessary, the recorder could also help resolve conflict situations within the group that the facilitator finds difficult to handle on her own.

Number and duration of sessions

- **Number of sessions**

  The number of focus group sessions to be conducted depends upon project needs, resources, and whether new information is still coming from the sessions, (that is, whether contrasting views within and between various groups in the community are still emerging). If not, you may stop.

  One should plan to conduct at least two FGDs for each sub-group (for example, two for males and two for females). Otherwise you have no way of assessing whether the information you get from the first FGD is representative for that group.

- **Duration**

  A focus group session typically lasts up to an hour and a half. Generally the first session with a particular type of group is longer than the following ones because all of the information is new. Thereafter, if it becomes clear that all the groups have a similar opinion on particular topics, the facilitator may be able to move the discussion along more quickly to other topics which still elicit new points of view.

III. PROCESSING AND ANALYSIS OF RESULTS

- After each focus group session the facilitator and recorder should meet to review and **complete the notes** taken during the meeting. This is the right moment to **evaluate** how the focus group went and what changes might be made in the topics when facilitating the next focus group.

  Immediately afterwards a full report of the discussion should be prepared which reflects the discussion as completely as possible, using the participants' own words. List the key statements, ideas, and attitudes expressed for each topic of discussion.

- After the transcript of the discussion is prepared, **code**, following your topics, the participants' statements right away, using the left margin. Make finer sub-codes. **Write comments** (your first interpretation of the data) in the right margin. Formulate additional questions if certain issues are still unclear or controversial and include them in the next FGD. Further categorise the statements for each topic, if required.
- When you have all the data, **summarise** it in a **compilation sheet** organising the findings per topic for each. Number the FGD interviews and use key words to summarise group statements in the compilation sheet so that you can always go back to the full statement. If you have different categories of informants, e.g., male and female, you can summarise the information from the male and female groups on two **separate** compilation sheets. ()
- You should then to do a **systematic comparison** between groups on all topics. Use your **objectives** and problem analysis diagram as a framework for analysis and comparison.
- The next step could be to put the major findings for different study populations on one sheet. You may want to use some of these sheets in your research report.
- Sometimes you may also wish to use diagrams when summarising the causes or components of the problem understudy.
- Only now can you report the major findings of the FGDs in a narrative.

IV. REPORT WRITING

Start with a description of the purpose of the FGDs, the selection and composition of the groups of FGD participants and a commentary on the group process, so the reader can assess the validity of the reported findings.

Present your findings, following your list of topics and guided by the objective(s) of your FGD.

Include quotations whenever possible as illustrations, particularly for key statements.

Brainstorming----------

Brainstorming is a group creativity technique designed to generate a large number of ideas for the solution to a problem. The method was first popularized in the late 1930s by Alex Faickney Osborn, an advertising executive and one of the founders of BBDO, in a book called *Applied Imagination.* Osborn proposed that groups could double their creative output by using the method of brainstorming.[1]

Although brainstorming has become a popular group technique, researchers have generally failed to find evidence of its effectiveness for enhancing either quantity or quality of ideas generated. Because of such problems as distraction, social loafing, evaluation apprehension, and production blocking, brainstorming groups are little more effective than other types of groups, and they are actually less effective than individuals working independently. For this reason, there have been numerous attempts to improve brainstorming or replace it with more effective variations of the basic technique. Although traditional brainstorming may not increase the productivity of groups,

it may still provide benefits, such as enhancing the enjoyment of group work and improving morale. It may also serve as a useful exercise for team building.

Approach

There are four basic rules in brainstorming.[7] These are intended to reduce the social inhibitions that occur in groups and therefore stimulate the generation of new ideas. The expected result is a dynamic synergy that will dramatically increase the creativity of the group.

1. **Focus on quantity**: This rule is a means of enhancing divergent production, aiming to facilitate problem solving through the maxim, *quantity breeds quality*. The assumption is that the greater the number of ideas generated, the greater the chance of producing a radical and effective solution.
2. **No criticism**: It is often emphasized that in group brainstorming, criticism should be put 'on hold'. Instead of immediately stating what might be wrong with an idea, the participants focus on extending or adding to it, reserving criticism for a later 'critical stage' of the process. By suspending judgment, one creates a supportive atmosphere where participants feel free to generate unusual ideas.
3. **Unusual ideas are welcome**: To get a good and long list of ideas, unusual ideas are welcomed. They may open new ways of thinking and provide better solutions than regular ideas. They can be generated by looking from another perspective or setting aside assumptions.
4. **Combine and improve ideas**: Good ideas can be combined to form a single very good idea, as suggested by the slogan "1+1=3". This approach is assumed to lead to better and more complete ideas than merely generating new ideas alone. It is believed to stimulate the building of ideas by a process of association.

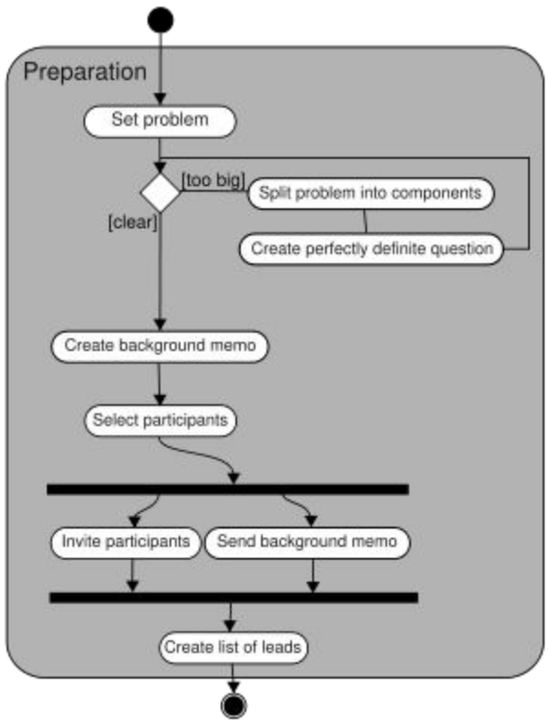


Diagram of a brainstorming session

Outline of the method

Set the problem

One of the most important things to do before a session is to define the problem. The problem must be clear, not too big, and captured in a definite question such as *"What service for mobile phones is not available now, but needed?"*. If the problem is too big, the chairman should divide it into smaller components, each with its own question. Some problems are multi-dimensional and non-quantified, for example *"What are the aspects involved in being a successful*

entrepreneur?". Finding solutions for this kind of problem can be done with morphological analysis (problem-solving).

Create a background memo

The background memo is the invitation and informational letter for the participants, containing the session name, problem, time, date, and place. The problem is described in the form of a question, and some example ideas are given. The ideas are solutions to the problem, and used when the session slows down or goes off-track. The memo is sent to the participants at least two days in advance, so that they can think about the problem beforehand.

Select participants

The chairman composes the brainstorming panel, consisting of the participants and an idea collector. Ten or fewer group members are generally more productive than larger groups. Many variations are possible but the following composition is suggested.

- Several core members of the project who have proved themselves.
- Several guests from outside the project, with affinity to the problem.
- One idea collector who records the suggested ideas.

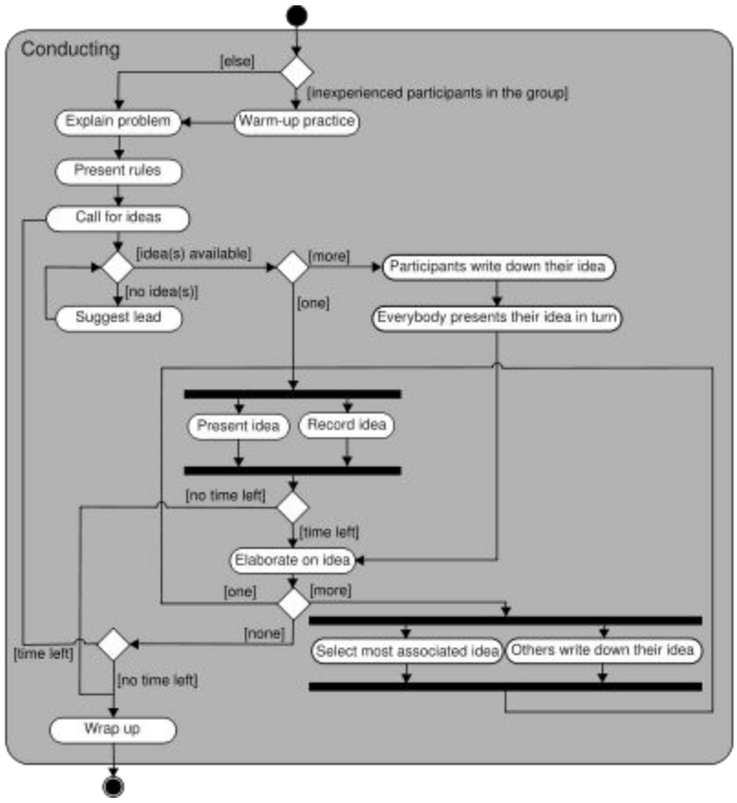
Create a list of lead questions

During the brainstorm session the creativity may decrease. At this moment, the chairman should stimulate creativity by suggesting a lead question to answer, such as *Can we combine these ideas?* or *How about a look from another perspective?*. It is advised to prepare a list of such leads before the session begins.

Session conduct

The chairman leads the brainstorming session and ensures that the basic rules are followed. The activities of a typical session are:

1. A warm-up session, to expose novice participants to the criticism-free environment. A simple problem is brainstormed, for example *What should be the next corporate Christmas present?* or *What can be improved in Microsoft Windows?*.
2. The chairman presents the problem and gives a further explanation if needed.
3. The chairman asks the brainstorming panel for their ideas.
4. If no ideas are coming out, the chairman suggests a lead to encourage creativity.
5. Every participant presents his or her idea, and the idea collector records them.
6. If more than one participant has ideas, the chairman lets the most associated idea be presented first. This selection can be done by looking at the body language of the participants, or just by asking for the most associated idea.
7. The participants try to elaborate on the idea, to improve the quality.
8. When time is up, the chairman organizes the ideas based on the topic goal and encourages discussion. Additional ideas may be generated.
9. Ideas are categorized.
10. The whole list is reviewed to ensure that everyone understands the ideas. Duplicate ideas and obviously infeasible solutions are removed.
11. The chairman thanks all participants and gives each a token of appreciation.



Process of conducting a brainstorming session

The process

- Participants who have an idea but no possibility to present it are encouraged to write down their idea and present it later.
- The idea collector should number the ideas, so that the chairperson can use the number to encourage quantitative idea generation, for example: *We have 44 ideas now, let's get it to 50!*.
- The idea collector should repeat the idea in the words he or she has written it, to confirm that it expresses the meaning intended by the originator.
- When more participants are having ideas, the one with the most associated idea should have priority. This to encourage elaboration on previous ideas.
- During the brainstorming session the attendance of managers and superiors is strongly discouraged, as it may inhibit and reduce the effect of the four basic rules, especially the generation of unusual ideas.

Variations

Nominal group technique

The nominal group technique is a type of brainstorming that encourages all participants to have an equal say in the process. It is also used to generate a ranked list of ideas.

Participants are asked to write down their ideas anonymously. Then the moderator collects the ideas and each is voted on by the group. The vote can be as simple as a show of hands in favor of a given idea. This process is called distillation.

After distillation, the top ranked ideas may be sent back to the group or to subgroups for further brainstorming. For example, one group may work on the color required in a product. Another group may work on the size, and so forth. Each group will come back to the whole group for ranking the listed ideas. Sometimes ideas that were previously dropped may be brought forward again once the group has re-evaluated the ideas.

It is important for the moderator to have received training in this process before attempting to take on the moderating task. The group should be primed and encouraged to embrace the

process. Like all team efforts, it may take a few practice sessions to train the team in the method before tackling the important ideas.

Group passing technique

Each person in a circular group writes down one idea, and then passes the piece of paper to the next person in a clockwise direction, who adds some thoughts. This is repeated until everybody gets their original piece of paper back. By this time, it is likely that the group will have extensively elaborated on each idea.

A popular alternative to this technique is to create an "Idea Book" and post a distribution list or routing slip to the front of the book. On the inside cover (or first page) is a description of the problem. The first person to receive the book lists his or her ideas and then routes the book to the next person on the distribution list. The second person can log new ideas or add to the ideas of the previous person. This continues until the distribution list is exhausted. follow-up "read out" meeting is then held to discuss the ideas logged in the book. This technique takes longer, but allows individual thought whenever the person has time to think deeply about the problem.

Team idea mapping method

This method of brainstorming works by the method of association. It may improve collaboration and increase the quantity of ideas, and is designed so that all attendees participate and no ideas are rejected.

The process begins with a well-defined topic. Each participant creates an individual brainstorm around the topic. All the ideas are then merged into one large idea map. During this consolidation phase, the participants may discover a common understanding of the issues as they share the meanings behind their ideas. As the sharing takes place, new ideas may arise by the association. Those ideas are added to the map as well. Then ideas are generated on both individual and group levels. Once all the ideas are captured, the group can prioritize and/or take action.

Electronic brainstorming

Electronic brainstorming is a computerized version of the manual brainwriting technique. It can be done via email. The chairman or facilitator sends the question out to group members, and they contribute independently by sending their ideas directly back to the facilitator. The facilitator then compiles a list of ideas and sends it back to the group for further feedback. Electronic brainstorming eliminates many of the problems of standard brainstorming, such as production blocking and evaluation apprehension. An additional advantage of this method is that all ideas can be archived electronically in their original form, and then retrieved later for further thought and discussion. Electronic brainstorming also enables much larger groups to brainstorm on a topic than would normally be productive in a traditional brainstorming session.

Other forms of electronic brainstorming could be browser based, client / server, or peer to peer related software.

Directed brainstorming

Directed brainstorming is a variation on electronic brainstorming (brainwriting) described above. It can be done manually or with computer technology. Directed brainstorming works when the solution space (that is, the criteria for evaluating a good idea) is known prior to the session. If known, that criteria can be used to intentionally constrain the ideation,process. In directed brainstorming, each participant is given one sheet of paper (or electronic form) and told the brainstorming question. They are asked to produce one response and stop. At that point all of the papers (or forms) are randomly swapped among the participants. Each, then, has possession of someone else's form containing a single response. The participants are asked to look at the idea in front of them and create a new idea that is better than that idea on the first criterion dimension. For example, if the first criterion was "low cost" the participants might be asked to improve upon the idea in front of them by creating an idea that is lower in cost. The forms are then swapped again and respondents are asked to improve upon the ideas against the second criterion. The process is repeated for three or more rounds.

In the laboratory, directed brainstorming has been found to almost triple the productivity of groups over electronic brainstorming.[8]

Individual brainstorming

"Individual Brainstorming" is the use of brainstorming on a solitary basis. It typically includes such techniques as free writing, free speaking, word association, and the "spider web," which is a visual note taking technique in which a people diagram their thoughts. Individual brainstorming is a useful method in creative writing and has been shown to be superior to traditional group brainstorming.

Conclusion

Brainstorming is a popular method of group interaction in both educational and business settings. Although it does not appear to provide a measurable advantage in creative output, brainstorming is an enjoyable exercise that is typically well received by participants. Newer variations of brainstorming seek to overcome barriers like production blocking and may well prove superior to the original technique. How well these newer methods work, and whether or not they should still be classified as brainstorming, are questions that require further research before they can be answered.